

We Claim:

1. A filter assembly having a housing open at one end an annular filter media/core assembly disposed in said housing, an end plate secured to the housing and closing the open end thereof, the end plate having first inlet opening means, second inlet opening means and outlet opening means, a combination valve disposed between the annular filter media/core assembly and the end plate for controlling fluid flow through the first inlet opening means and the second inlet opening means, the combination valve including a first portion cooperating with the first inlet opening means and a second portion cooperating with the second inlet opening means, the second portion having more resistance to fluid flow than the first portion, whereby, in normal operation, the first portion will yield prior to the second portion and fluid flow will pass through the first inlet opening means, the annular filter media/core assembly and then be discharged through said outlet opening means and when the annular filter media/core assembly begins to clog, pressure upstream of the first portion will build and upon attainment of a predetermined pressure, the second portion will open the second inlet opening means and fluid flow can pass through the second inlet opening means and out the outlet opening means bypassing the annular filter media/core assembly.
2. A filter assembly as in Claim 1 including a spring disposed between the top of the annular filter media/core assembly and the inside of the housing for biasing the annular filter media/core assembly toward the end plate to retain the combination valve in place.
3. A filter assembly as in Claim 1 wherein the combination valve comprises an annular member, with the first portion extending outwardly from a central portion and the second portion extending inwardly from the central portion, the second portion being stiffer than the first portion; the annular filter element engaging the central portion of the combination valve between the first portion and the second portion to retain the combination valve in place.

4. A filter assembly as in Claim 3 wherein the annular filter media/core assembly includes a central core surrounded by filter media and the lower end of the central core engages the central portion of the combination valve.
5. A filter assembly as in Claim 1 wherein the end plate has an inclined surface inclined with respect to the longitudinal axis of the housing and a transverse surface transverse to the longitudinal axis of the housing, the first inlet opening means being disposed in the inclined surface and the second inlet opening means being disposed in the transverse surface.
6. A filter assembly as in Claim 1 wherein the first inlet opening means comprises a plurality of openings.
7. A filter assembly as in Claim 1 wherein the second inlet opening means comprises a plurality of openings.
8. A filter assembly as in Claim 1, wherein the first and second inlet opening means each comprised a plurality of openings arranged generally in a circle around the axis of the filter assembly, the circle of openings for the first inlet opening means being substantially concentric to the circle of openings for the second inlet opening means, with the annular filter/media core assembly urging the combination valve against the end plate in the region between the two circle of openings.
9. A filter assembly as in Claim 1, wherein the annular filter media/core assembly comprises a core, a filter media surrounding the core and end caps at the ends of the filter media, the filter media and end caps being fabricated from materials that can be bonded to fuse the components to one another and preclude any significant fluid flow therebetween.
10. A filter assembly as in Claim 9, wherein the filter media and the end caps are ultrasonically welded to one another.

11. A filter assembly as in Claim 5 wherein the second portion has a surface engaging the end plate and a surface engaging the central core.
12. A filter assembly as in Claim 1 including a cover secured to the end plate, the lid having an outwardly extending recess for receiving a gasket.
13. A filter assembly as in Claim 12 including complementary retaining means between the gasket and the sides of the recess for retaining the gasket in the recess.
14. A filter assembly as in Claim 13 wherein the complementary retaining means include projections on either the gasket or a wall of the recess, wherein when the gasket is inserted into the recess, it will be retained therein.
15. In a filter assembly having a housing opening at one end, an annular filter media/core assembly disposed in said housing, and an end plate secured to the housing and closing the end plate having first inlet openings, second inlet openings and an outlet opening the open end thereof, the improvement comprising a combination valve disposed between the annular filter media/core assembly and the end plate for controlling fluid flow through the first and second inlet openings, the combination valve including a first portion cooperating with the first inlet openings and a second portion cooperating with the second inlet openings, the second portion having more resistance to fluid flow than the first portion, whereby in operation, the first portion will yield in response to minimum pressure and fluid flow will pass through the first inlet openings, the annular filter media/core assembly and then be discharged through the outlet opening and when the annular filter media/core assembly begins to clog, pressure will begin to build and upon attainment of a higher predetermined pressure, the second portion will open the second inlet openings and fluid flow can pass through the second inlet openings and out the outlet opening, bypassing the annular filter media/core assembly.

16. A filter assembly as in Claim 15 wherein the combination valve comprises an annular member, with the first portion extending outwardly from a central portion and the second portion extending inwardly from the central portion, the second portion being stiffer than the first portion; the annular filter element engaging the central portion of the combination valve between the first portion and the second portion to retain the combination valve in place.

17. A filter assembly as in Claim 16 including a spring disposed between the top of the annular filter media/core assembly and the inside of the housing for biasing the annular filter media/core assembly toward the end plate to retain the combination valve in place.

18. A combination valve adapted to be disposed in the housing of a filter for controlling fluid flow through first and second inlet openings in an end plate, the combination valve including a body having a first annular portion extending outwardly from the body and adapted to cooperate with the first inlet openings, and a second annular portion extending inwardly from the body and adapted to cooperate with the second inlet openings, the second portion having more resistance to fluid flow than the first portion, whereby, in operation, the first portion will yield in response to minimum pressure to permit flow through the first inlet openings and upon attainment of a higher predetermined pressure, the second portion will open to permit flow through the second inlet openings.